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The purpose of the Maryland Entomological Society, which was formed in November, 1971, is to promote the science of entomology in all its branches, to provide a meeting place for professional and amatuer entomologists residing in Maryland and the District of Columbia, to issue a periodical and other publications dealing with entomology and to facilitate the exchange of ideas and information through its meetings and publications.

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The Maryland Entomological Society is a non-profit, scientific organization. Meetings are held on the third Friday of every month (from October to May) at 8:00 p.m., in room 403 of the Biological Sciences Building, University of Maryland Baltimore County.

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Cover illustration: The logo of the Maryland Entomological Society features the Maryland Shield and a specimen of Euphydryas phaeton (Drury), the Baltimore checkerspot, which became the official insect for the state of Maryland through the efforts of many of the members of this Society.

THE DEVELOPMENT OF SASSAPAW RESEARCH REFUGE

Robert T. Mitchell

Sassapaw Research Refuge is a farm devoted to studies of Lepidoptera and their ichneumon parasitoids and to the protection, propagation and restoration of selected local species of butterflies and moths. Owned jointly by the author's family, the refuge consists of 18 acres of rolling land in southeastern Anne Arundel County, Maryland, 16 miles south of Annapolis and 22 miles southeast of Washington, DC, near Fairhaven.

Sassapaw Woodlands

The refuge centers around two scenic hills, each 110 feet above sea level, overlooking the Chesapeake Bay, one-half mile eastward. Westward the open land slopes steeply toward ten acres of moist deciduous woods with large trees of several species: principally, tulip tree, Liriodendron tulipifera L., white oak, Quercus alba L., American beech, Fagus grandifolia Ehrh., and sweetgum, Liquidambar styraciflua L. Hickories, Carya spp., and black walnut, Juglans nigra L., trees scattered throughout the woods, together with the oaks, contribute to a habitat especially accomodating to underwing moths, Catocala spp. Despite the high popularity of these attractive moths, barely anything is known of their ichneumon parasitoids, so this is a subject of high rank on the Sassapaw research agenda.

The woodland's understory consists mainly of pawpaw, Asimina triloba Dunal., and spicebush, Benzoin aestivale (L.), a delight to fanciers of the zebra swallowtail, Eurytides marcellus (Cramer), and the spicebush swallowtail, Pterourus troilus (L.), respectively. Ground cover of special interest on the wooded slope is toothwort, Dentaria diphylla Michx., a foodplant of larvae of the falcate orange tip, Falcapica midea Hubn., an early spring butterfly. In the bottom land wood-nettle, Laportea canadensis (L.), cursed by bare-legged trespassers is fairly common and supportive of successive generations, except the first, of the comma butterfly, Polygonia comma (Harris).

The wide opening at the very bottom of the slope, a 50-year flood plain, is a marshy area fed by springs and run off. This is public land rather than refuge property, but if turtlehead, Chelone glabra L., can be established there with a colony of the Baltimore checkerspot, Euphydryas phaeton (Drury), Maryland's state insect, Anne Arundel County likely would not object to this use of its land.

The Woods Margins

Seemingly more productive lepidopterously than the woodland itself is the woods margin with a generally eastern exposure. Here the pawpaw grows denser, bears more fruit, and supports most of the refuge's zebra swallowtail population. Flowering dogwood, Cornus florida L., third or fourth most common tree on the refuge, grows best in the woods margin. First brood spring azure, Celastrina ladon ladon (Cramer) larvae feed on the blossoms and very young berries, but relatively few lepidoptera use dogwood. Nevertheless, it is greatly welcomed at Sassapaw for its bright display of white bracts in early spring and its deep red foliage and shiny red berries in the fall. In the woods margin too, Hercules' club, Aralia spinosa L., stretches its prickly stalks upward in search of sunny openings in the foliage of the neighboring trees and bushes for displaying the huge white blossom heads. They are so inviting to bees and other nectarivores that, when in full bloom, the plants are overburdened, bending strongly or even breaking under the weight of the eagerly feeding insects. As many as 14 swallowtail butterflies have been seen at one time on a single inflorescence at Sassapaw.

Conditions along the woods margin are highly favorable for Japanese honeysuckle, Lonicera japonica Thunb., which is beautiful, very fragrant, and attractive to butterflies, hawkmoths and hummingbirds, but is a pernicious, destructive weed of the highest degree. At the woods margin it climbs to the tops of the tallest trees in densely netted curtains. From there it invades the woods, enveloping and strangling the bushes and saplings of the understory. As the invasion progresses, more sunlight enters the woods, improving the conditions for further honeysuckle growth and penetration, until mere skeletons of trees are shrouded by vines and the ground is completely covered with a tangled mass of worthless vegetation. With limited manpower, mostly only my own, all ten acres of woodland cannot be protected from the onslaught of this pest plant, but special efforts are made to rescue some of the pawpaw and spicebush

understory from strangulation and to remove the honeysuckle from selected spots to preserve choice areas on the forest floor for foodplants such as toothwort and wood nettle and for mainly ornamental plants as May apple, Podophyllum peltatum L., Christmas fern, Polystichum acrostichoides Michx., Jack-in-the-pulpit, Arisaema triphyllum (L.), and spring beauty, Claytonia virginica L. that adorn the woods. The honeysuckle must be untangled from hundreds of feet of sweet pepperbush, Clethra alnifolia L., a native shrub highly attractive to nectarivores, that has been planted along the woods margin. Also in certain moist spots there, honeysuckle is pulled out to prevent its destruction of false nettle, Boehmeria cylindrica (L.), used regularly by the red admiral, Vanessa atalanta rubria (Fruhs.) and also to assure good stands of wingstem, Actinomeris alternifolia (L.) and crownbeard, Verbesina occidentalis (L.), foodplants of the last brood of the spring azure, the presence of which is revealed by the activity of attending ants on the blossom and seed heads in late summer and autumn.

Caterpillar Pasture

Almost eight acres of the refuge is open land, and about one-half of this is in a single block, called Caterpillar Pasture. In June, July, and August a different third of the pasture is "bush-hogged" to produce sprouts and vegetation in three stages of development to somewhat diversify the habitat. The greatest production of spicebush swallowtails on the refuge occurs on the sassafras, Sassafras varifolium (Salisb.) sprouts in the pasture. Smooth sumach, Rhus glabra L., and dwarf sumach, Rhus copallina L. grow abundantly in the open acreage of the refuge. Clumps of these bushes are not mowed here and there, because their blossoms, although lacking floral color are highly attractive to nectarivores. Originally, I envisioned this property as a butterfly farm with part of this pasture containing rows of closely planted trees, each row of a different species. Heavy fertilization and stringent prunning would produce dense foliage on shrubby trees that could be screened conveniently for rearing caterpillars of desired species to adulthood for marketing or for marketing earlier stages, if so desired. This setup could serve too as a zoo. These commercial ideas have been abandoned in favor of a more academic use, emphasizing the greater value of scientific achievement. Interest in mass rearings in covered rows now is to obtain host material for parasitoid studies or to rear parasitoids themselves under confinement. Implementation of this phase of pasture development is just now being started.

The Hedgerows

Hedgerows of the refuge consist of tree species typical of open land: sassafras, sweetgum, wild cherry, Prunus serotina Ehrh., dogwood, and black locust, Robinia pseudoacacia L. A few American elm, Ulmus americana L., and hackberry, Celtis occidentalis L., are there too. Trees of woods margins and hedgerows seem to have more larvae than trees in the open land. Occasionally they are scanned for caterpillars for rearing parasitoids. Caterpillars are usually detected first by noticing missing or partly consumed leaves. The long conspicuous leafstems remaining after the large leaves of tuliptree have been consumed is good evidence of feeding by larvae of the tiger swallowtail, Pterourus glaucus.

Despite the name of royal walnut moth, Citheronia regalis (Fabr.), for the adult and hickory horned devil for the larva, this species can be found as well on sweetgum, on which the favored luna moth, Actias luna (L.) is often found. Also, despite the spicebush silk moth's Callosamia promethea (Drury) name it uses the sassafras, wild cherry and sweetgum as well, while its co-generic tuliptree silk moth, C. angulifera (Wlk.), the larvae of which are almost identical to those of the spicebush silk moth, feed almost exclusively on tulip tree.

Black locust is the favorite food of the silver-spotted skipper, Epargyreus clarus (Cramer), the larvae of which hide during the day between leaves drawn together with silk threads. Camouflage and lack of intensified feeding by larvae of the tawny emporer, Asterocampa clyton (Bdv.& LeC.) and hackberry butterfly, A. celtis (Bdv.& LeC.), make them difficult to find; but in mid-summer they can be swept from hackberry foliage with a long bamboo pole and collected from a sheet on the ground. The elms of the hedgerows are host to three common butterflies: the mourning cloak, Nymphalis antiopa (L.), the comma (most commonly only the spring brood) and the questionsign, Polygonia interrogationis (Fabr.). Larvae of the latter are taken also on hackberry. A lush growth of poison ivy, Rhus toxicodendron L., covers the ground of all the hedgerows.

It is allowed to remain, because where it is most dense, honeysuckle is subdued.

The Open Fields

The most impressive field of the refuge was planted in partridge pea, Cassia fasciculata L., as part of the soil bank program, before the farm was bought. When mowed early in May, its lush delicate growth effectively overcomes most weeds. The field's optimum beauty is beheld when the pea is in yellow bloom and the tickseed-sunflowers, Bidens spp., one of the few obviously surviving weeds, with its conspicuous bright sunflower-type blossoms extend above the continuous 2-acre stand of peas. Besides the wealth of yellow bloom, the field is frequented by a host of yellow butterflies, principally the common sulphur, Colias philodice Godart, and alfalfa butterfly, C. eurytheme Bdvl., from neighboring clover and alfalfa fields, male tiger swallowtails that are fairly common each year, and in some years little sulphurs, Pyrisitia lisa Bdv.& LeC., which breed in the pea. In 1975, a colony of cloudless sulphurs, Phoebis sennae eubule (L.), contributed even more to the beauty of this field, but none has been seen since. I have long known that sennas, such as partridge pea, are food plants of several sulphur butterflies, but not until I walked through this field in shorts and brushed against severely stinging spines of io caterpillars, Automeris io (Fabr.), did I learn that the pea is host to that popular silk moth.

Another soil bank crop previously established at the refuge is sericea, Lespedeza cuneata (Dumont). Like partridge pea, this plant provides excellent food and cover for bob-white quail, Colinus virginianus (L.). It is a food plant of the eastern tailed blue, Everes comyntas (Godart). Gray hairstreak, Strymon melinus Hbn., adults feed commonly at sericea blossoms, but no oviposition or larvae have been observed on the plant at the refuge.

Part of the open acreage of Sassapaw Refuge is managed to maintain broom sedge, Andropogon virginicus L., the dominant grass in the stage of ecological succession upon abandonment of poor upland soil. This habitat supports a meager insect fauna, but some species are unique. Virginia pine, Pinus virginiana Mill., food of the pine elfin, Incisalia niphon (Hbn.), is typical of this habitat. In the course of regular succession in this area it would be expected to occur until supplanted by hardwoods. Oddly, only a single Virginia pine has become established in this half-acre plot, and, in fact, in all eight acres of open land here. Pearly everlasting, Gnaphalium obtusifolium L., highly desired because it is the major food plant of the American painted lady, Vanessa virginiensis (Drury), is found most regularly in this habitat; but being poorly nourished, the plants are small. They grow much larger where the ground has been plowed and fertilized as the second year in newly planted clover, alfalfa, timothy, etc.; but by the third season it succumbs to competition from the field crop. For a lush pure stand, it must be seeded alone and kept cultivated.

Wild carrot, Daucus carota L., or Queen Anne's lace, also develops best in newly planted hay fields, but it is not as subject to crowding. It is the native food plant of the black swallowtail, Papilio polyxenes asterius Stoll. Catering to this butterfly by cultivating the wild carrot isn't feasible, however, since plenty of black swallowtail larvae can be harvested from parsley, parsnips, or carrots in the vegetable garden by examining these plants regularly for the small black caterpillars with a white saddle mark before predators eat them. These can then be reared to adulthood in captivity.

Red cedar, Juniperus virginiana L., seedlings that appear are marked and then transplanted during the winter into a wind break. These trees are checked periodically for the olive hairstreak, Mitoura gryneus (Hbn.). Although observed a few miles from the refuge, none have yet been seen there. No hymenopterous parasitoids have been reported on this hairstreak, so a colony at hand for study is greatly desired.

Aster ericoides L., a white aster that blooms in the fall, is the dominant plant in abandoned fields with fertile soil. Because such fields are ideal feeding stations for migrating monarchs, Danaus plexippus (L.), management to keep them pure is important.

Monarch Pasture

All milkweeds, Asclepias spp., are excellent attractants and are acceptable as food for monarch caterpillars. At lilac time female monarchs arrive from the South and lay eggs on newly emerging sprouts of common milkweed, Asclepias syriaca L. The milkweed is in blossom when butterflies of this brood emerge. Their eggs are usually laid on the

flower buds or terminal tender leaves. By the time this second brood matures, the old milkweed plants bear seed pods and have stopped growing. These butterflies then search for more tender milkweed foliage in mowed fields or in the garden or cornfields where the plants are resprouting. Or, they may use butterfly-weed, A. tuberosa L., a beautiful orange perennial that matures later than the common milkweed. Although native to the area, butterfly-weed, called orange glory, butterfly flower, or some other fancy name by nurserymen, has not grown at Sassapaw of its own accord. Introductions have not been very satisfactory although plants grown from wild-collected seed adorn the author's home garden. A third Asclepias, swamp milkweed, A. incarnata L., matures even later; and, where available, is the principal food plant of the fourth brood, from mid-August through September. Otherwise, the butterflies must accept secondary growth of common milkweed or butterfly-weed, which in many cases has a second blooming period during the growing season. A milkweed pasture is being developed at Sassapaw to provide a good supply of acceptable milkweed growth throughout the season. After six years of care of a single transplant of purple milkweed, A. purpurascens L., it finally set seed. Hopefully seedlings in 1982 will be the start of another milkweed species in Monarch Pasture.

Further Plant Introductions

A double row of blueberry bushes, Vaccinium spp., forms a productive hedge along the open part of the south refuge boundary. The bloom of early spring is attractive to various butterflies, and a few caterpillars feed on the foliage. A living fence of trifoliate orange, Poncirus trifoliata (L.) is being extended along some 700 feet of open northern boundary. The thorny hedge will deter tresspassers; and hopefully, being a citrus, it will support a breeding population of giant swallowtails, Heraclides cresphontes Cram.

Adjacent the garden, 1/10-acre plots of red clover and alfalfa are being grown, not only to feed clover and alfalfa butterflies respectively and many moths that feed on these legumes, but because of the rich mulch cover obtained from mowings raked onto the garden to fertilize the vegetables and eliminate the necessity for weeding. Since lawn grass itself is not very lepidopterously productive, white clover, Trifolium repens L., is liberally seeded in the lawn at Sassapaw, enhancing its utility, especially by the tiny attractive eastern tailed blue.

In 1970, for habitat diversification, an acre of evergreens were planted with about equal numbers of white spruce, Picea alba Link, red spruce, Picea rubra (DuRoi), Scotch pine, Pinus sylvestris L., white pine, P. strobus L., and loblolly pine, P. taeda L. The latter, being indigenous, shows the best growth, as expected. They required thinning in the winter of 1980-81. The white pine is flourishing also, but the Scotch pine is poor. Worse than poor is the red spruce. The white spruce growth would be quite satisfactory if it were not damaged so badly by white-tailed deer, Odocoileus virginianus (Boddaert).

Also in 1970, a single Dutchman's pipe-vine, Aristolochia macrophylla Lam. from nursery stock was planted to supply food for the pipevine swallowtail, Battus philenor (L.). No use was made of it for six years, but from 1976 to 1980 more larvae developed on the vine than the plant could sustain. Many larvae were sacrificed so that a few could survive. Total defoliation and consumption of leaf buds have so severely damaged the vine that it barely survives from year to year. Meanwhile it has contracted a disease that caused black patches on the leaves and a die-back of the tender new shoots. All nurseries contacted for additional plants reply that the pipe-vine is no longer available, some attributing the shortage to crop failures. Before killing "excess" larvae I gave them alternative foods mentioned in texts like wild ginger, Asarum spp., and knotweed, Polygonum spp., but they were not accepted despite the hunger of the caterpillars. Perhaps the alternate plants are erroneous records. Perhaps the Sassapaw strain accepts only Aristolochia, or perhaps the larvae will accept only the plant it initially tastes. A strong sprouting root taken from the wild in West Virginia in 1980 and a few seedlings grown from seed from that plant are now being given extra good care at Sassapaw in preparation for future philenor populations.

No willows occurred at Sassapaw, so to encourage the viceroy, Basilarchia archippus (Cramer), pussy willow, Salix discolor, Muhl., which does not need the moist soil like native black willow, Salix nigra Marsh., were planted. Each winter hibernacula with the tiny overwintering larvae have been collected and reared to adulthood. Amazingly a few of these developed into the viceroy's co-generic species, red-spotted

purple, Basilarchia arthemis astyanax (Fabr.), which is found more commonly on wild cherry.

Plums, peaches, apples, a cherry, and a pear constitute the Sassapaw orchard. Of these the plums are, by far, the most effective butterfly attractors.

Butterfly Counts

How much are these plant introductions, maintenance operations and habitat manipulations contributing to the established purposes of the refuge? Butterfly counts help to measure their effects. A butterfly count consists of following a prescribed 1¼-mile course transecting the different refuge habitats and recording by habitat segment the total number of each species observed, recorded by sex, when possible. Additional notes are recorded on behavior (oviposition, mating, plant utilization etc.), presence of immature stages, plant phenology, Ichneumon sightings, and possibly other items of interest. Weather conditions at the beginning and end of the count are recorded also. Such a count is made 10 times per year according to a phenological calendar, as follows:

Census No.	Chief Index Plant in Pollination
1.	Winter cress, Cardimine hirsuta
2.	Toothwort, Dentaria diphylla
3.	Pawpaw, Asimina triloba
4.	Dogwood, Cornus florida
5.	Honeysuckle, Lonicera japonica
6.	Common milkweed, Asclepias syriaca
7.	Sweet pepperbush, Clethra alnifolia
8.	Hercules' club, Aralia spinosa
9.	Tickseed-sunflower, Bidens spp.
10.	White aster, Aster ericoides

Butterfly counts were started in 1979. At pollination time of each index plant, weather forecasts are closely followed to schedule a census on a day favorable for butterfly activity. If after a census has been taken, better weather conditions occur later within the same blooming period, an additional count may be made. The higher count is considered official.

The author welcomes any assistance in developing Sassapaw Research Refuge and would be very glad to cooperate with anyone interested in using it for field research on a lepidopterous or ichneumonological subject.

R.T.M., 4109 Tennyson Road, Hyattsville, Md. 20782

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MARYLAND ARCTIIDAE (COMPLETE) AND NOCTUIDAE (IN PART) INCLUDING LITHOSIINAE, ARCTIINAE, CTENUCHINAE, NOLINAE AND AGARISTINAE

Robert S. Bryant

Although the Arctiinae, commonly called tiger, ermine and harnessed moths, only average 1-2 inches in wing span, their bright colors and interesting patterns make them favorites among collectors. And who can resist stopping along a country road on a warm autumn afternoon to pick up a few wandering woolly bears as they dash madly across the hot macadam in search of food or a safe place to hibernate for the winter? This popularity is reflected by the fact that over 80% of the possible species for Maryland have been recorded and by a larger than usual number of collectors responding.

In addition to the Arctiidae, this report also includes the Nolidae and Agaristidae, long considered close allies of the arctiids, but here the percentage of species reported dropped off sharply. I can only attribute the paucity of records to the current lack of serious moth collectors in Md. and to the fact that the nolids are generally smaller and less conspicuous than the arctiids.

Two species, not contained in the 1938 McDunnough check list, are of concern to Md. collectors. An arctiid, Phragmatobia lineata Donahue & Newman, was described in 1966 and had not been taken south of Wrightsville, York Co., Pennsylvania. In 1968, Donahue kindly identified three Md. specimens for me as being lineata. He said he was surprised to see it from Md. and that he would report it in any follow-up work. Since, to my knowledge, that was never done this report will serve to announce a

southward range extension, for lineata, of approximately 70 miles. A few additional specimens have turned up since then and we now have it recorded from three counties. The second species, Comachara cadburyi Franclemont, a lithosiid, was described in 1939. Ferguson (pers. comm.) has taken it with some frequency in his back yard in Adelphi, Prince Georges Co., Md.

Two other species that have apparently never been reported south of Pa. are Ctenucha virginica Charpentier, a ctenuchid, and Celama triquetrana Fitch, a nolid. The former is well established in Garrett Co. and the latter is frequently taken around Baltimore

Celama sorghiella Riley, a subtropical nolid, is reported to be of sporadic occurrence northward to Long Island, New York but is unrecorded for Pa. (Tietz, 1952) or N.J. (Smith, 1910). I have collected it on several occasions at the UV light in my back yard.

Forbes (1960) reports an interesting but apparently incorrect record for Haploa triangularis Smith (=confusa Lyman). He mentions the rather precise locality of Cram Lake, Noble Co., Maryland which obviously does not exist. The species may turn up in Md. someday since it is also supposed to have been collected in Essex Co., N.J. but until that day it must remain as only a possibility

I had hoped to obtain a copy of the newly revised, but still unpublished, Check List of the Lepidoptera of America North of Mexico before submitting my arctiid list so that changes in the nomenclature could be included. But as this was not possible and since the projected cost may prevent many amateur collectors from obtaining a copy when it finally does become available, it seems advisable to mention some of the major changes and revisions that may be encountered.

Fortunately, most of the species names will remain the same but some of the familiar genera i.e.: Scepsis Walker, Eubaphe Hübner, Diacrisia Hübner and Estigmene Hübner, have given way to older or newer names. Scepsis was preoccupied by an older tabanid (fly) genus therefore Cisseps Franclemont was proposed to replace it. Cardé (1965) reinstated Holomelina Herrich-Schaeffer to replace Eubaphe, which refers to a genus of geometrids. Several of the white species, commonly called ermine moths, are now lumped together under the genus Spilosoma Stephens, replacing Diacrisia and Estigmene in part.

Several species in the genus Apantesis are in taxonomic limbo at the moment. To help Md. collectors through this quagmire temporarily, Dr. Ferguson offers the following advice. Apantesis vittata Fabricius (=radians Walker) probably does not occur as far north as Md. Therefore, any Md. specimen that superficially resembles vittata should be placed under nais Drury. These vittata-like specimens occur in both the yellow, northern and the red, southern forms. Another, slightly smaller species, often misidentified as nais, may be unnamed, and it is listed simply as Apantesis sp. The third member of this group found in Md., phalerata Harris, is usually more easily identified. It is urged that a great deal of rearing be done in regard to these species and that the females be preserved along with any progeny reared from them. (Details for constructing an easily assembled cage for rearing arctiid larvae may be found elsewhere in this issue.)

Numerous other changes will be encountered in the new check list, particularly in the order in which genera and species are arranged. It is not the purpose of this paper to explain them all but mainly to present a list of the species that have been recorded thus far. I have, therefore, chosen to follow the arrangement in the McDunnough check list and to note the new names in parentheses. This list was compiled from data submitted by 11 respondents and contains well over 500 individual entries. With 19 of the 23 counties represented by at least one specimen, a greater number of specimens have been recorded from the eastern and western counties than were recorded for the Sphingidae (Bryant,1981), but the bulk of the material is still from the central portion of the state. As with the sphingid list, the counties are arranged alphabetically and capitalized to make them more noticeable. It is hoped that members having material not mentioned here, or upon collecting additional species in the future, will report them to the author or otherwise make their data known. The initials following the dates, in most cases, indicate the collector and/or the present location of the specimen. For explanation of initials, consult the acknowledgements section.

AMATIDAE (CTENUCHINAE)

Scepsis (Cisseps) fulvicollis Hübner -- BALTIMORE Co.: Parkton, 25-VII-82 (JDG). Stevenson, 25-VII & 1-IX-65(RSB). Ten Hills, VIII-59, 6-VII-65, 6-IX-68, 24-VI-69, 2-VIII-70, 31-V & 18-VIII-71, 7-V-72,

18-VIII & 28-X-73, 7-VII & 7,8,16 & 25-VIII-82(RSB). CALVERT Co.: North Beach, 26-VIII-69(RSB). St. Leonard, 28-VI-82(JDG). CARROLL Co.: Reese, 18-V, 24-VII, 28-IX & 5-X-68(RSB). CHARLES Co.: Allens Fresh, 4-IX-71(RSB). Grayton, 9-X-71(RSB). DORCHESTER Co.: Cambridge, 7,8,16 & 17-VII-75(RCT). Meekins Neck, 8-X-70(RSB). HOWARD Co.: Woodbine, 2-VI-65(RSB).

Lycomorpha pholus Drury -- ALLEGANY Co.: Rawlings, 8-VII-82(JDG). WASHINGTON Co.: Sandy Hook, 5-VII-79(RSB) collected by W.A.Andersen.

Ctenucha virginica Charpentier -- ALLEGANY Co.: Rocky Gap State Park, 16-VII-82(JDG). BALTIMORE Co.: Catonsville-UMBC, VIII-73(PJK). GARRETT Co.: Avilton, 13-VII-78(RSB) collected by W.A.Andersen. Oakland, 7-VII-61(WAA).

NOLIDAE

Celama (Nola) sorghiella Riley -- BALTIMORE Co.: Ten Hills, 28-IX-71, 28-VIII & 4-IX-72, 28-VII-80, 5-IX-81, 11-IX-82(RSB).

Celama (Nola) triquetrana Fitch -- BALTIMORE Co.: Ten Hills, 19-V-71, 23-IV & 10-V & 20,25 & 28-VII-73, 17,21,25 & 26-VII & 2 & 5-VIII-80, 18 & 27-VII-81, 3-V & 25 & 27-VII & 1,3,4 & 5-VIII-82(RSB). CARROLL Co.: Reese, 24-VII-68(RSB).

Celama (Nola) ovilla Grote -- BALTIMORE Co.: Ten Hills, 23-VII-80, 22-V & 5-VI-81, 15-IV & 3-V-82(RSB).

Sarbena (Meganola) minuscula Zeller -- BALTIMORE Co.: Ten Hills, 4-VI-73, 28-IV-74(RSB). WASHINGTON Co.: Sideling Hill, 20-IV-77(RSB).

ARCTIIDAE
LITHOSIINAE

Crambidia pallida Packard -- CALVERT Co.: Chesapeake Beach, 7,26 & 30-VIII-52(USNM) collected by R.S.Rozman. MONTGOMERY Co.: Colesville, 29 & 30-VIII-75, 22-VIII-77, 25-VIII & 13-IX-78(USNM). Plummer's Island, 24-VII, 21-IX-03(USNM). PRINCE GEORGES Co.: Beltsville Agri. Res. Cent., 1-IX-73(USNM).

Crambidia uniformis Dyar -- MONTGOMERY Co.: Plummer's Island, 2-IX, 13-IX, 28-VIII-02, 3-VII, 28-VIII(USNM) collected by Barber, Schwarz & Caudell.

Crambidia pura Barnes & McD. -- PRINCE GEORGES Co.: Riverdale, VI-20 (USNM).

Crambidia cephalica Grote & Robinson -- CALVERT Co.: Chesapeake Beach, 31-VIII-52(USNM) collected by R.S.Rozman. MONTGOMERY Co.: Plummer's Island, 24-VII, 30-VII-03, 26-VIII-02(USNM) collected by Barber & Schwarz.

Cisthene packardii Grote -- CALVERT Co.: Chesapeake Beach, 28-VIII-52 (USNM) collected by R.S.Rozman. MONTGOMERY Co.: Plummer's Island, 28-VII(USNM). PRINCE GEORGES Co.: Beltsville Agri. Res. Cent., 20-VI-70(USNM).

Cisthene plumbea Stretch -- CALVERT Co.: Chesapeake Beach, 25-VIII-52 (USNM) collected by R.S.Rozman. MONTGOMERY Co.: Plummer's Island, 19-VI(USNM) collected by E.A.Schwarz, 19-VI-12(USNM). PRINCE GEORGES Co.: Oxon Hill, 12-VI-72(USNM) collected by Gary F. Hevel.

Clemensia albata Packard -- MONTGOMERY Co.: Colesville, 8-VIII-75, 25-VIII-78(USNM). Hughes Hollow nr. Seneca, 21-V-77(USNM). Plummer's Island, VIII-02, VIII-03(USNM). Sycamore Landing, 28-V-77(USNM).

Hypoprepia miniata Kirby -- ALLEGANY Co.: Flintstone, 1-VIII-62(RSB) collected by F.H.Chermock. Rocky Gap St. Pk., 5-VIII-82(JDG). BALTIMORE Co.: Lutherville, 12-VIII-61(WAA). CARROLL Co.: Marriottsville, 24-VI-69(RSB). Reese, 23-V-70(RSB). FREDERICK Co.: Libertytown, 4,7,11 & 12-VIII-67, 24-VIII-72 & 9-VI-73(USNM) collected by R.S.Rozman. MONTGOMERY Co.: Plummer's Island, 8-VII-68(USNM) collected by Paul J. Spangler. PRINCE GEORGES Co.: Beltsville Agri. Res. Cent., 29-VIII-71(USNM). Bowie, VI-41(RTM). WASHINGTON Co.: Sideling Hill, 8-VII-67(RSB), 9-VII-82(JDG).

Hypoprepia fucosa Hubner -- ALLEGANY Co.: Flintstone, 1-VIII-62(RSB) collected by F.H.Chermock. BALTIMORE Co.: Loch Raven, 4 & 6-VIII-69, 23-VII-70(RSB). CALVERT Co.: Chesapeake Beach, 9-VIII-56(USNM) collected by R.S.Rozman. CARROLL Co.: Reese, 19-VIII-67, 28-VII-72 (RSB). DORCHESTER Co.: Cambridge, 7 & 9-VII-75(RCT). New Bridge, 26-VI-65(RSB) collected by F.H.Chermock. FREDERICK Co.: Libertytown, 4,7,11 & 12-VIII-67, 25-VII-70 & 22-VII-72(USNM) collected by R.S.Rozman. MONTGOMERY Co.: Cabin John, 20-VII-14(USNM) collected by Barber. Plummer's Island, 11-VII-11(USNM) collected by P.R.Myers. Sycamore Landing, 24 & 31-VII-76(USNM). county unknown: Ivy Neck, 15-VIII-68(BDW).

Comachara cadburyi Franclemont -- MONTGOMERY Co.: Colesville, 20,23 & 30-IV-76 & 11-V-79(USNM). Sycamore Landing, 17-V-77(USNM). PRINCE

GEORGES Co.: Adelphi, 9-V-70(USNM) collected by D.C.Ferguson. Beltsville Agri. Res. Cent., 17-V-71(USNM).

ARCTIINAE

Halysidota (Lophocampa) caryae Harris -- GARRETT Co.: Bittinger, 26-VI-61(RTM).

Halysidota tessellaris J.E.Smith -- ANNE ARUNDEL Co.: Annapolis, 4-VI-78 (WTH). Severn, 26-VI-75(PJK). Sherwood Forest, 21-VII-64(RSB). BALTIMORE Co.: Gwynn Oak, 20-VI-65(RSB) collected by F.H.Chermock. Loch Raven, 5-VI-70(RSB). Owings Mills, 30-VI-67(RSB). Reisterstown, 10-VII-76(RSB). Ten Hills, 13 & 25-VI & 7-VII-64, 8-VII & 29-VIII-72, 9 & 20-VII & 16-VIII-73(RSB). DORCHESTER Co.: Cambridge, 9-VII-75(RCT). PRINCE GEORGES Co.: Bowie, 7-VII-48, 12-VI-62(RTM).

Cycnia tenera Hubner -- ANNE ARUNDEL Co.: Annapolis, 6-VI-79(WTH). BALTIMORE Co.: Catonsville-UMBC, 3-VI-70(RSB). Ten Hills, 15 & 19-VIII-66, 10-VIII-69, 22 & 27-VIII-72, 18-VIII-73, 28-VI-76, 24-VII-80, 10-VIII-81, 4,7 & 15-VIII-82(RSB). CARROLL Co.: Reese, 10-VI-67 (RSB). HOWARD Co.: Woodbine, 2-VI-65(RSB). PRINCE GEORGES Co.: Bowie, 3,13 & 20-VI-60, 30-VII-62, 11-VI & 27-VII-70(RTM).

Euchaetias egle Drury -- BALTIMORE Co.: Ten Hills, 24-VI-69, 28-VI & 10 & 13-VII-73(RSB). CARROLL Co.: Reese, 27-VII-68(RSB). MONTGOMERY Co.: Colesville, 17-VII-75, 20 & 22-VII-78(USNM). PRINCE GEORGES Co.: Bowie, VI-41(RTM).

Euchaetias oregonensis Stretch -- ALLEGANY Co.: Flintstone, 1-VIII-62(RSB) collected by F.H.Chermock. BALTIMORE Co.: Owings Mills, 20-VIII-64 (BDW). CARROLL Co.: Reese, 7-VI-69(RSB). ST. MARYS Co.: Patuxent Naval Air Station, 26-VI-76(RSB).

Eubaphe (Holomelina) aurantiaca Hubner -- BALTIMORE Co.: Ten Hills, 7-VI-68, 20-VIII & 9 & 10-IX-69, 23-V & 3-VIII-70(RSB). CARROLL Co.: Reese, 10 & 13-VI-67, 7-VI-68(RSB). FREDERICK Co.: Libertytown, 25-VII to 11-VIII(USNM) collected by R.S.Rozman. HOWARD Co.: Woodbine, 2-VI-65(RSB). PRINCE GEORGES Co.: Beltsville, 18-VI-69(JHF), 29-VIII-71(USNM). Laurel, 27-VIII-64(USNM) collected by R.S.Rozman. Oxon Hill, 16-IX-71(USNM) collected by Gary F. Hevel.

Eubaphe (Holomelina) opella Grote -- BALTIMORE Co.: Ten Hills, 7-VI-65, 15 & 21-VI-66(RSB). CARROLL Co.: Reese, 10,13 & 24-VI-67(RSB). DORCHESTER Co.: New Bridge, 26-VI-65(RSB) collected by F.H.Chermock.

Eubaphe (Holomelina) ferruginosa form immaculata Reakirt -- GARRETT Co.: Bittinger, 19-VII-81(RSB). The Glades, 19-VII-81(RSB) both collected by W.A.Andersen.

Phragmatobia lineata Newman & Donahue -- BALTIMORE Co.: Owings Mills, 30-VI-67(RSB). Stevenson, 27-VI-59(RSB) collected by F.H.Chermock, ex larva eclosed 14-VI-65(RSB). CARROLL Co.: Marriottsville, 24-VI-69(RSB). HOWARD Co.: West Friendship, 17-VIII-73(RSB). Woodbine, 5-V-70(RSB).

Apantesis virgo Linnaeus -- ALLEGANY Co.: Frostburg, 29-VII-82(JDG). La Vale, 6 & 25-VII-82(JDG). Rocky Gap St. Pk., 22-VII-82(JDG). ANNE ARUNDEL Co.: Fairhaven, 30-VIII-79(RTM). BALTIMORE Co.: Cockeysville, 18-VIII-62(WAA). Eklo, 15-VIII-48(WAA). Owings Mills, 20-VIII-64(BDW). Stevenson, 12-VIII-61(RSB) collected by F.H.Chermock. CALVERT Co.: Plum Point, 25 & 27-VIII-74(JHF). GARRETT Co.: Bittinger, 3-VIII-69(RTM). HOWARD Co.: Woodbine, VIII-62(RSB) collected by S.Dobbs. MONTGOMERY Co.: Woodside, 18-VIII-46(JHF). PRINCE GEORGES Co.: Beltsville, 16-VIII-67(RSB) collected by J.H.Fales. Bowie, VII-41(RTM). ST. MARYS Co.: Loveville, 21-VIII-75(RSB) collected by W.A.Andersen. Oaks, 5-IX-74(RSB) collected by W.A.Andersen. WICOMICO Co.: Salisbury, 12-VIII-82(JDG).

Apantesis doris Boisduval -- BALTIMORE Co.: Baltimore (3 old specimens from the Barnes collection without further data, now in USNM).

Apantesis arge Drury -- ANNE ARUNDEL Co.: Annapolis, 15-IV-77 & 23-IV-79 (WTH). BALTIMORE Co.: Ten Hills, 28-VIII-72 & 17 & 26-VIII-73(RSB). PRINCE GEORGES Co.: Beltsville, ex larva eclosed 12-V-44(RSB) collected by J.H.Fales. Bowie, VI-41, 8 & 18-IV-45, 12-IX-63, 13-IX-68(RTM). Riverdale, 19-IV-52(RTM). University Park, 31-VIII-63 (RTM). WORCESTER Co.: Careytown, 31-VII-62(WAA).

Apantesis anna form persephone Grote -- ANNE ARUNDEL Co.: Annapolis, 20-VI-79(WTH). BALTIMORE Co.: Gwynn Oak, 20-VI-65(RSB) collected by F.H.Chermock. Loch Raven, 21-VI-71(RSB). Owings Mills, 21 & 24-VI-65(BDW), 30-VI-67(RSB). Ten Hills, VI-60 & 21-VI-64(RSB). CARROLL Co.: Marriottsville, 24-VI-69(RSB). PRINCE GEORGES Co.: Bowie, VI-41(RTM). WORCESTER Co.: Ocean City, found dead VII-53(RSB).

Apantesis figurata Drury -- BALTIMORE Co.: Baltimore(an old series in USNM, evidently reared). HARFORD Co.: Aberdeen, 2-VIII-76(CLS) col-

lected by M.Wilson. PRINCE GEORGES Co.: Riverdale, 19-VI-62(RTM).

Apantesis phyllira Drury -- BALTIMORE Co.: Baltimore (an old series in USNM, evidently reared). CALVERT Co.: Dunkirk, 18-IX-65(RTM). PRINCE GEORGES Co.: Bowie, 5-X-44 & 2-IX-52(RTM).

Apantesis sp. -- ALLEGANY Co.: Flintstone, 1-VIII-62(RSB) collected by F.H.Chermock. ANNE ARUNDEL Co.: Annapolis, 8-VI-79(WTH). FREDERICK Co.: Libertytown, (79 specimens in USNM collected by R.S.Rozman). MONTGOMERY Co.: Seneca, 21-V-77 collected by D.C.Ferguson. PRINCE GEORGES Co.: Beltsville, 28-VII-67(RSB) collected by J.H.Fales.

Apantesis nais Drury -- ALLEGANY Co.: Rocky Gap St. Pk., 7 & 15-VI & 4 & 6-VIII-82(JDG). ANNE ARUNDEL Co.: Annapolis, 10-VI-78 & 27-V-79(WTH). BALTIMORE Co.: Baltimore, 26-IV-47(WAA). Loch Raven, 20-V-62(WAA), 4 & 7-VIII-69, 5-VI-70 & 2-VIII-71(RSB). Lutherville, 8-VIII-62(WAA), 7-VIII-65(RSB) collected by W.A.Andersen. Parkton, 25-VII-82(JDG). Ten Hills, 20-IX-63, 12-VIII-67, 7-VII-68, 3-VI & 20-VIII-69, 3 & 17-VIII-70, 18 & 26-V-71, 23-V-73, 18-VIII-80, 12-VII & 9-VIII-82(RSB). CECIL Co.: Elkton, VIII-59(RSB). PRINCE GEORGES Co.: Bowie, VI-41(RTM).

Apantesis phalerata Harris -- ANNE ARUNDEL Co.: Annapolis, 10-VI-78(WTH). BALTIMORE Co.: Catonsville-UMBC, VII-74(PJK). Moncton, 7-VI-66(WAA). Ten Hills, 27 & 30-VII-72 & 14-IX-81(RSB). ST. MARYS Co.: Oaks, 18-IX-80(RSB) collected by W.A.Andersen. WORCESTER Co.: Ocean City, 28-IX-75(RSB) collected by E.C.Bryant. county unknown: Bay City, 4-XI(CLS) collected by C.L.Aug.

Diacrisia (Spilosoma) latipennis Stretch -- ALLEGANY Co.: Rocky Gap St. Pk., 15-VI-82(JDG). BALTIMORE Co.: Ten Hills, 21-VI-66, 31-V & 5-VI-69, 10-VI-70, 12 & 21-VI-71, 9-VI-72, 6-VI-76, 27-V-77, 11 & 18-VI-81(RSB). WASHINGTON Co.: Sideling Hill, 23-VII-82(JDG).

Diacrisia (Spilosoma) virginica Fabricius -- ALLEGANY Co.: Rocky Gap St. Pk., 17-V-82(RSB) collected by J.D.Glaser. ANNE ARUNDEL Co.: Annapolis, 10,14 & 15-V-78, 28-IV & 3 & 12-V & 8-VI-79(WTH). BALTIMORE Co.: Baltimore, 20-IV-47(WAA). Catonsville-UMBC, 31-V-76(RSB). Loch Raven, 28-VI-71(RSB). Ten Hills, 10-VI-70, 10-VI-71, 7-V & 10-VIII & 22-IX-72, 2-VI-73, 9-VIII-81, 7 & 31-VIII-82(RSB). PRINCE GEORGES Co.: Bowie, VI-41, 30-IV & 8-V-46(RTM).

Isia (Pyrrharctia) isabella Abbot & Smith -- ALLEGANY Co.: Rocky Gap St. Pk., 15-VI-82(JDG). ANNE ARUNDEL Co.: Annapolis, 3-VI-78 & 5-VI-79 (WTH). Fairhaven, ex larva eclosed 17-V-73, ex larva eclosed 25-V-75, ex larva eclosed 17-V-80, ex larva eclosed 27-VII-81(RTM). no locality, 20-V-75(PJK). BALTIMORE Co.: Gwynn Oak, 20-VI & 23-VIII-65(RSB) collected by F.H.Chermock. Loch Raven, 11-VI-70(RSB). Owings Mills, 21-VI-65(BDW). Ten Hills, VIII-59, 7-VI-68, 11-VI & 11-VIII-70, 6 & 9-VI-71, 29-V & 8 & 14-VI & 15 & 21-VIII-82(RSB). Towson, 19-VIII-82(JDG). CALVERT Co.: Plum Point, 11-VIII-75(JHF). CECIL Co.: Elk Neck Pk., ex larva eclosed 30-IX-58(RTM). PRINCE GEORGES Co.: Bowie, 23-VII-43, 22-IV-44, 15-V-46(RTM). Glenn Dale, ex larva eclosed 17-V-80(RTM). Riverdale, ex larva eclosed 25-V-52 (RTM). University Park, 23-VIII-74(RTM). WORCESTER Co.: Ocean City, VII-53(RSB).

Estigmene acraea Drury -- ALLEGANY Co.: Rocky Gap St. Pk., 17-V-82(RSB) collected by J.D.Glaser. ANNE ARUNDEL Co.: Annapolis, 10-V-78, 1-V & 12-VI-79(WTH). BALTIMORE Co.: Cockeysville, 1-VII-70(CLS) collected by D.Staines. Loch Raven, 11-VI-70(RSB). Owings Mills, 21-VI-65(BDW). Ten Hills, VIII-59, 3-VII-66, 4-VIII-70, 20 & 27-VIII-72, 31-VIII-73, 11-VIII-80(RSB). CALVERT Co.: Plum Point, 13 & 27-VIII-59(JHF). CARROLL Co.: Sykesville, ex larva eclosed 21-V-64(RTM). DORCHESTER Co.: Cambridge, 22-VII-75(RCT). HOWARD Co.: Woodbine, VII-61(RSB) collected by S.Dobbs. MONTGOMERY Co.: Glen Echo, 1914(USNM) collected by J.H.Paine. PRINCE GEORGES Co.: Adelphi, 7-VI-70(USNM). Berwyn Hts., ex larva eclosed 23-V-65(RTM). Bowie, V-41, 20-V-46, 20-VI-60, ex larva eclosed 17-V-44, ex larva eclosed 28-VII-48(RTM). WICOMICO Co.: Salisbury, 29-VIII-82(JDG). WORCESTER Co.: Ocean City, VII-50(RSB).

Estigmene (Spilosoma) congrua Walker -- ALLEGANY Co.: Rocky Gap St. Pk., 17-V-82(RSB) collected by J.D.Glaser. ANNE ARUNDEL Co.: Annapolis, 12 & 16-V-79(WTH). BALTIMORE Co.: Gwynn Oak, 28-VI-65(RSB). Loch Raven, 4-VIII-69, 11-VI-70(RSB). Ten Hills, 3-VIII-66, 22-V & 3-VIII-70, 23-V & 10-VI-71, 12 & 14-VI-72, 10-V-73, 23-IV-77, 11-VI-81, 29-VII & 23-VIII-82(RSB). CARROLL Co.: Reese, 30-VII-66(RSB). PRINCE GEORGES Co.: Adelphi, 9-V & 7-VI-70(USNM). Beltsville Agri. Res. Cent., 14-VI-70 & 7-V-73(USNM).

Hyphantria cunea Drury -- ANNE ARUNDEL Co.: Annapolis, 28-IV & 12 & 26-V-79(WTH). Sherwood Forest, 1-VIII-73(RSB). BALTIMORE Co.: Baltimore, 11-V-47(WAA). Catonsville-UMBC, ex larva eclosed 10-20-VII-

70(RSB). Ten Hills, 7-VII-70, 23-VII-72, 28-V-73, 22 & 23-VII-74, 30-VII-80, 31-V & 26-VI & 24,28 & 29-VII-82(RSB). PRINCE GEORGES Co.: Bowie, 10-V-44, 6-V-46, ex larva eclosed 21-VII-48(RTM). (many specimens from Beltsville, College Park & Riverdale in USNM). WASHINGTON Co.: Sideling Hill, 20-IV-77(RSB).

Ecpantheria deflorata Fabricius -- ANNE ARUNDEL Co.: Annapolis, 10-VI-78, 2,5 & 20-VI-79, ex larva eclosed 15-VI-79(WTH). Fairhaven, ex larva eclosed 24-VI-80(RTM). Odenton, 24-VI-75(PJK). BALTIMORE Co.: Carney, 25-VII-82(JDG). Catonsville, VII-63(RSB) collected by J.L. Barnard. Loch Raven, VI-64(RSB) collected by R.King, 23-VI-69, 5, 11,17 & 22-VI & 2 & 6-VII-70, 21 & 28-VI-71(RSB). Ten Hills, 24-V-77, 7,8,9 & 11-VII-80(RSB). CALVERT Co.: Plum Point, 11-VII-74 & 28-VI-75(JHF). CARROLL Co.: Marriottsville, 24-VI-69(RSB). GARRETT Co.: Bittinger, 26-VI-61(RTM). PRINCE GEORGES Co.: Bowie, ex larva eclosed 30-V-44, ex larva eclosed 30-V-52, ex larva eclosed 28-VI-63(RTM), 23-VI-66(JHF), 23-VI-82(JDG). ST. MARYS Co.: Lexington Park, 13-VII-82(JDG).

Utetheisa bella Linnaeus -- ANNE ARUNDEL Co.: no locality, 24-VI-75(PJK). BALTIMORE Co.: Baltimore, 25-IX-46(WAA). Owings Mills, 24-VIII-64 (BDW). Ten Hills, 28-VIII-73(RSB). CECIL Co.: Conowingo, 9-VI-73 (RSB), 23-VIII-73(PJK). Port Deposit, 15-IX-77(RSB) collected by W.A.Andersen. CHARLES Co.: Benedict, 21-IX-82(JDG). Liverpool Pt., 21-VIII-75(RSB) collected by W.A.Andersen. Riverside, 9-X-71(RSB). DORCHESTER Co.: Elliott Island, 10-VI-65(RSB) collected by W.A. Andersen. PRINCE GEORGES Co.: Beltsville, 5-IX-43(JHF). Bowie, 16-IX-42, 7-X-44, 10-VIII-48, 2 & 20-IX-49(RTM).

Haploa clymene Brown -- ALLEGANY Co.: Rocky Gap St. Pk., 21-VII-82(JDG). ANNE ARUNDEL Co.: Annapolis, 25-VII-80(WTH). Deale Beach, 3-VII-59 & 16-VII-60(RTM). Sherwood Forest, 1-VIII-73(RSB). BALTIMORE Co.: Ten Hills, 25-VII-65, 9-VII-69, 11-VII-73, 16-VII-82(RSB). CALVERT Co.: Plum Point, 16-VII-66(JHF). St. Leonard, 27-VII-82(JDG). FREDERICK Co.: South Mtn., 20-VII-82(JDG). MONTGOMERY Co.: Colesville, 19-VII-75(USNM). Glen Echo (Bethesda), 27-VII-37(USNM). Plummer's Island, 21-VII-06(USNM) collected by W.L.McAtee. ST. MARYS Co.: Lexington Park, 24-VII-82(JDG).

Haploa colona Hubner -- ANNE ARUNDEL Co.: Galesville, 12-VI-77(USNM) collected by D.C.Ferguson. South River, 12-VI-77(RSB) collected by W.A.Andersen. ST. MARYS Co.: Patuxent Naval Air Station, 26-VI-76 (RSB). WASHINGTON Co.: Woodmont Rd., 2-VII-77(RSB). WORCESTER Co.: Stockton, (a series in USNM from H.G.Dyar collection).

Haploa lecontei Guerin -- ALLEGANY Co.: Cresaptown, 15-VI-82(JDG). Green Ridge State Forest, 29-V-75(RSB) collected by W.A.Andersen. Rocky Gap St. Pk., 15-VI-82(JDG). BALTIMORE Co.: Baltimore, 12-VI-47(WAA). Roller, 14-VI-75(RSB). CARROLL Co.: Marriottsville, 24-VI-69(RSB). Reese, 17-VI-67 & 12-VI-68(RSB). FREDERICK Co.: Libertytown, 20-VI-69(USNM) collected by R.S.Rozman. WASHINGTON Co.: Woodmont Rd., 11-VII(WAA).

Haploa contigua Walker -- BALTIMORE Co.: Ten Hills, found dead 1-VII-71 (RSB).

AGARISTIDAE

Alypia octomaculata Fabricius -- ALLEGANY Co.: Green Ridge State Forest, 19-V-66(WAA). Oldtown Rd., 30-IV-77(RSB). Will's Mtn., 3-V-82(JDG). BALTIMORE Co.: North Bend, IV-80(RSB) collected by R.Peed. Stevenson, 20-VII-66(RSB) collected by W.A.Andersen. Ten Hills, IV-60 & 8-VII-66(RSB). CARROLL Co.: Westminster, 29-VI-67(RSB) collected by B.Groff. TALBOT Co.: Lloyd's Landing, 11-VI-81(RSB) collected by W.A.Andersen. WASHINGTON Co.: Deneen Rd., 30-IV-77(RSB). Greenbrier St. Pk., 17-IV-77(RSB). Hancock, 9-VI-82(JDG). Sandy Hook, 15-IV-77(RSB) collected by W.A.Andersen.

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THE CUPEDIDAE OF MARYLAND (COLEOPTERA)

C. L. Staines, Jr.

The Cupedidae is a small family consisting of twenty-five species, worldwide, in six genera. In North America there are four species, three in the genus Cupes and the monotypic Priacma from the west coast (Atkins, 1979). These beetles are usually rare in collections though they are probably common.

Description: Shape elongate, somewhat depressed, the dorsal surface irregularly sculptured. Head short; antennae eleven-segmented, filiform but thick. Pronotum irregular on surface, margined; with parallel sides. Legs slender; tarsi 5-5-5. Elytra broader than pronotum, elongate, strongly costate. Abdomen with five visible sternites.

Key to the Maryland species of Cupes

Body pale brown or ash-gray; elytra with three indistinct undulating bands..... concolor
Elytra and pronotum dark brown; head reddish..... capitatus

Cupes capitatus Fabricius

Description: Head brown with a dense covering of ochreous-yellow scales; a deep longitudinal furrow and a deep transverse furrow; a pair of tubercles at base of antennae. Elytra dark brown with deep quadrate punctures in interspaces, densely covered with dark brown scales. Underside of body brown with brown scales. Length 8mm, width 1.8-2.2mm (Atkins, 1963).

Ecology: unknown.

Range: Eastern United States west to Kansas and Great Lakes region.

Specimens examined: ANNE ARUNDEL Co.: Edgewater, 9-VII-81 (blacklight). Friendship, 30-VII-67. BALTIMORE Co.: Baltimore, 30-VII-68 (light trap), 30-VII-65 (under pine bark), 9-VIII-75.

Cupes concolor Westwood
synonyms: C. cinerea Say, C. trilineata Melsheimer, C. aculatus Casey

Description: Head and prothorax with brown and ash-colored scales except on median ridge of pronotum where they may be dark brown. Head with pair of broad conical tubercles at base of antennae. Elytra with longitudinal ridges, heavily scaled with alternate lines of dark brown

and ash-colored scales, interspaces with rows of rectangular punctures. Underside of body brown with pale scales. Length 10-13mm, width 2.5-3mm (Atkins, 1963).

Ecology: This species has been collected in rotten logs and stumps of Quercus (oak), in a decayed pole of Castanea (chestnut), around old farm buildings, from beneath bark of trees, and off of ripe apples. The species is believed to feed, at least partially, on fungus (Atkins,1979).

Range: same as for C. capitatus.

Specimens examined: ANNE ARUNDEL Co.: Edgewater, 20-VII-80 (blacklight). Severna Park, 26-VII-75. BALTIMORE Co.: Baltimore, 27-VI-68 (light trap). Butler, 16-VII-80 (molasses trap), 28-VII-76, 1-VIII-76, 22-VIII-76. Towson, VIII-67 (light trap). WORCESTER Co.: Pocomoke State Forest, 7-VII-68, 2-X-65.

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I would like to thank C. Mitter (University of Maryland) and E.J. Ford for allowing me to examine the collections under their care.

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SOME COLLECTING RECORDS FROM THE 1979 AND 1980 ANNUAL FIELD TRIPS OF THE MARYLAND ENTOMOLOGICAL SOCIETY

Philip J. Kean

In 1979 the Maryland Entomological Society went to an area of the state that we had not previously explored, the lower Eastern Shore. Our annual collecting trip was conducted on June 16, and took us to Caroline and Dorchester Counties.

We were blessed with sunny weather and temperatures in the 80's. Members were to meet at Sandy Point State Park, on the Anne Arundel County side of the Bay Bridge, to form car pools, and I arrived shortly before 9:00 A.M., only to find no others waiting for me. Soon I was joined by Dr. William Andersen and Nicholas Cresanta. After waiting for about half an hour, we decided to leave but before doing so, we examined a large patch of pink milkweeds blooming nearby. Vanessa virginiensis (Drury), Colias philodice Godart, Artogeia rapae (Linnaeus) and Speyeria cybele (Fabricius) were seen in numbers nectaring at the flowers. Examination of the foliage of the milkweeds revealed fifth instar larvae of Danaus plexippus (Linnaeus) feeding on the leaves.

We proceeded over the Bay Bridge and headed in the direction of Martinak State Park, situated on the Choptank River south of Denton in Caroline County. There we met Richard Smith and Mark Cowden and his young son. We stopped for a brief picnic lunch at a picturesque spot overlooking the river, after which we headed northwest toward the Tuckahoe State Park on the Caroline/Queen Annes County border. At several points along the road, we stopped to collect at the numerous patches of pink milkweeds and Indian hemp that were in bloom. Here we found such species as Pterourus troilus (Linnaeus), Pterourus glaucus (Linnaeus), Epargyreus clarus (Cramer), Polites coras (Cramer) and an occasional Papilio polyxenes asterius Stoll., as well as those species mentioned earlier.

Tuckahoe State Park was a deeply wooded habitat with few good nectar sources. Even so, there was a profusion of Nymphalis antiopa (Linnaeus) along the shaded paths, plus a few specimens of Polygonia comma (Harris). N. antiopa was also common at other suitable habitats throughout our trip. A single hairstreak, Strymon melinus Hubner, was taken by Dr. Andersen at Tuckahoe.

Next, we made our way south toward Vienna in eastern Dorchester County. We noticed that butterfly weed was in bloom at many points along the roads, so we stopped to collect at several of these spots, but found the collecting unproductive. More Speyeria cybele and an occasional Satyrium calanus falacer (Godart) were taken, and more of the common summer skippers like Epargyreus clarus were seen. However, Nick Cresanta netted a large specimen of the spicebush twig borer, Oberea ruficollis (Fabricius), by sweeping some of the roadside vegetation.

Our next stop was in the vicinity of New Bridge along the Chicamacomico River in Dorchester County. This was the type locality for

Chermock's mulberry wing skipper, Poanes massasoit chermocki Simmons & Andersen. It was not seen at New Bridge on this trip, but we did make other significant captures at this site. Mark Cowden and Dick Smith collected fresh males of Satyrium liparops strigosum (Harris), and we all took specimens of Satyrodes appalachia (Chermock). The latter were very abundant. Dr. Andersen also turned up a specimen of the beautiful goldsmith scarab, Cotalpa lanigera (Linnaeus), that was feeding on one of the numerous crack willows growing along the roadside.

Afterwards, we proceeded toward the Blackwater National Wildlife Refuge. We passed some of the many corn and soy fields so prevalent on the Eastern Shore. Most of the roadsides are ditched for drainage, and a profusion of Indian hemp grew along the ditches, so we stopped to collect in such areas. Most of the common summer fare such as Pterourus glaucus, P. troilus, Vanessa virginiensis, Speyeria cybele, Colias philodice, C. eurytheme Boisduval, Artogeia rapae, Everes comyntas (Godart), Phyciodes tharos (Drury), Basilarchia archippus (Cramer), Danaus plexippus, Epargyreus clarus, Polites coras and Polites origenes (Fabricius) and Pompeius verna (Edwards) were seen. Among the other insect life abounding in the stands of Indian hemp were many large nymphs of the Chinese mantid, Tenodera aridifolia sinensis Saussure. These voracious predators were crawling among the flowers, and on more than one occasion were found feeding on specimens of Polites coras and P. origenes. Occasional specimens of Satyrium calanus falacer and Vanessa atalanta rubria (Fruhstorfer) also were found on the Indian hemp blossoms.

As we got closer to the vast swamplands of the Blackwater, we began encountering specimens of Poanes viator (Edwards) and P. aaroni (Skinner). P. viator feeds on wild rice and marsh millet, while P. aaroni is suspected of feeding on one of the marsh grasses. These species tend to be local and restricted to swamps and marshes. We found more and more of these two skippers as we entered the actual refuge property. P. viator was the predominant species found within the refuge area. We continued collecting in Blackwater Refuge for the rest of the day and eventually recorded a specimen of Atrytone logan logan (Edwards) in the very center of the swamp at Wolfpit Marsh. We also saw a bald eagle in this same general area of the refuge.

This was a most enjoyable and productive field trip. Such species as Atrytone logan and Cotalpa lanigera were significant captures for me, and the specimens will occupy a prominent position in my collection of Maryland insects.

In 1980 we returned to the Green Ridge State Forest region of eastern Allegany County. This area was the site of the society's 1977 spring field trip, and many members wanted to go back to this region of scenic beauty. This area was also a favorite collecting spot of the late Harry K. Clench of the Carnegie Museum in Pittsburg.

Our trip began on the morning of June 28 with a group meeting in west Baltimore to form car pools. The following members assembled at the appointed time: Dr. Austin Platt, Dr. John Carroll, Stephen Harrison, Nicholas Cresanta, Society President Richard Smith, Ed and Joy Cohen, Dr. Robin Todd and his wife Hyacinth and the author. At this point, we climbed into three cars and headed for Frederick to link up with members from the Washington area who might be planning to attend. After waiting in Frederick without being joined by any others, we headed out Interstate 70 for Green Ridge.

Before going to the state forest, we made a detour off the main highway, at Hancock in western Washington County, to get gas and to do a little exploratory collecting north of town. I had been told of a site nearby where a colony of the beautiful regal fritillary, Speyeria idalia (Drury), could be found. We were experiencing excellent weather conditions with clear skies and temperatures that hovered near the 90 degree mark. We had already seen such species as Artogeia rapae, Colias sp., and Pterourus glaucus along the highway. Unfortunately, the entire collecting party became lost and after winding up across the state line in Pennsylvania, we decided to call off our futile efforts to locate the elusive regal fritillary.

Continuing on toward Green Ridge State Forest, we left I-70 at its junction with old U.S. Route 40. From here, we proceeded to our first collecting site at Fifteen Mile Creek in the state forest. Once we left the main highway, the character of the surrounding habitat immediately took on a wilder appearance, and we started to sight butterflies more characteristic of woodland habitats such as Nymphalis antiopa, Speyeria cybele and some of the hairstreaks.

At Fifteen Mile Creek, Dr. Platt and Steve Harrison left the rest of us to pursue Basilarchia butterflies independently. They intended to collect a live sample of Basilarchia arthemis astyanax (Fabricius) for

breeding stock and electrophorysis studies. Their search met with success and a series of 28 males was taken.

The main group pressed onward toward Old Hancock Road beyond the creek before starting to collect. No sooner had we found a likely site along the road than we ran into Mr. Frank Fee and Clark Shiffer from State College, in Pennsylvania. They were searching for live material of Euristrymon ontario (W.H.Edwards) and a variety of unusual Diptera. They had evidently arrived too late for the flight period of E. ontario, but Mr. Shiffer had managed to collect a most unusual green and black fly in the family Stratiomyiidae. Frank Fee had also taken a male pipevine swallowtail, Battus philenor (Linnaeus), one of only two that were seen that day.

At this point, most of us started to spread out and collect along the roadside. It wasn't long before Dr. Carroll nabbed a specimen of Satyrium liparops by picking it up with his fingers. Although rubbed, I am sure that the specimen probably fared better under the touch of his fingers than it would have if he had swatted it with his ant trowel! Anyway, several other S. liparops were taken near here before the day was out.

In the large field on Old Hancock Road, we encountered numbers of Speyeria cybele and Colias philodice nectaring at the many butterfly-weeds that were blooming along the roadside. Other species found flying through the tall grasses included Lycaena phlaeas americana Harris, Pterourus troilus, Papilio polyxenes asterius, Vanessa virginiensis, Clossiana bellona bellona (Fabricius), Everes comyntas, Epargyreus clarus, Thorybes bathyllus (Smith) and a single specimen of Achalarus lyciades (Geyer). One species of special note taken here was Speyeria aphrodite (Fabricius), of which both sexes were collected.

Continued collecting in the woods adjacent to this large field yielded such species as Cercyonis pegala alope (Fabricius) and Megisto cymela (Cramer). Occasionally, the Cercyonis landed on tree trunks to feed at sap flows. They proved very difficult to net and only a few specimens were taken. The Megisto, with their slow flight close to the ground, were much easier to capture. Another species seen in large numbers along the edge of these woods was Satyrium calanus falacer. Both worn and fresh specimens were seen alighting on foliage, mostly of oaks, and a good series was taken by each of us.

After breaking for lunch, we started back toward Fifteen Mile Creek. Upon re-entering the forest, we turned up two additional skippers, Polites origenes and Wallengrenia egeremet (Scudder). Some of the more woodland species like Polygonia comma and Nymphalis antiopa were common. Additional species like Basilarchia arthemis astyanax and Charidryas nycteis (Doubleday & Hewitson) also were taken. The Basilarchia were found in large numbers settling on the road at mud puddles. But undoubtedly the best catch for most of us from this area of our trek was the pearly eyed satyr, Enodia anthedon Clark. These fast flying and elusive woodland butterflies were found in limited numbers near the creek. They proved to be a real challenge to collect, but everyone got at least one specimen either by netting them as they landed on overhanging leaves or by surprising them as they paused to feed at sap flows on the trunks of injured trees. At one point, I tracked one for nearly five minutes before finally netting it when it settled on an oak tree trunk to feed on sap. As it turned out, I was glad that I kept after this particular specimen. Not only was it in perfect condition, but it led me to a huge aggregation of beetles feeding on sap flowing from a wound at the base of the oak tree. Most numerous among the frenzied bugs feeding here were the silphids, particularly Silpha novaboracensis Forster. Literally dozens of this species were crawling all over the moist area of the tree trunk feeding on the sap. Interspersed with them were several of the larger Silpha americana Linnaeus and an occasional Silpha inaequalis Fabricius. Also found were a few staphylinid beetles and some sap-feeding beetles of the family Nitidulidae, primarily Nitidula sp. and Glischrochilus sp. A representative sampling of these beetles was taken.

We continued to collect along the shaded roadside paralleling Fifteen Mile Creek for a good while. Since we were well into the forest by this time, we could no longer count on finding milkweeds in any numbers for nectar sources, so we had to look for other plants. We observed that the hairstreaks were visiting the flowers of Viburnum sp. Additional specimens of Satyrium calanus falacer and S. liparops were taken as they fed on these flowers. In searching the Viburnums, we noticed that they attracted a good number of cerambycid beetles, particularly those in the Lepturine group. These beetles are known to feed on a variety of polliniferous flowers, and we easily collected Strangalia sp., Anoplo-

dera sp., and Typocerus sp., which were predominant. Additional species such as Euderces picipes (Fabricius), Acmaeops directus (Newman) and A. bivittatus (Say), and Toxotus vittiger (Randall) also could be seen. We even had the good fortune of finding two or three examples of the beautiful metallic blue Lepturine, Gaurotes cyanipennis (Say). The brilliance of the coloration on the elytra of this species give it a jewel-like quality. Other unusual Coleoptera that were beaten from foliage included a specimen of the bronze birch borer, Agrilus anxius Gory, and the unusual chrysomelid beetle, Calligrapha rhoda Knab.

While the rest of us were busy with our nets, Dr. Carroll was digging up all the ant nests he could find. Among his captures were Myrmica sp., Crematogaster sp., Tetramorium caespitum (Linnaeus) from the sub-family Myrmicinae, and Lasius sp., Polyergus lucidus (Mayr), and three different species of Formica from the sub-family Formicinae, existing as a mixed colony.

From Fifteen Mile Creek, we started back east toward Stottlemyer Road on the eastern edge of the State Forest. This is one of the wildest looking spots in the whole forest with several rockslide areas, dense woods, and shale and pine barren outcroppings. On our way, we stopped at a small field along Fifteen Mile Creek by old Route 40 and collected another Battus philenor. We also bagged a specimen of Harkenclenus titus (Fabricius) that was feeding at a butterflyweed flower by the side of the road.

Upon re-entering the forest from I-70, we drove past several fields that were under cultivation. Through the tall grasses, we could see Colias philodice, Artogeia rapae and Clossiana bellona bellona, all in numbers. Larger fritillaries would occasionally zoom across the road, but they were moving too fast for positive identification.

Eventually we stopped and collected in the vicinity of the old Stottlemyer farm, picking a site near the rockslides where large patches of Indian hemp were still in bloom. More Satyrium calanus falacer, Epargyreus clarus, Harkenclenus titus and Pterourus troilus were taken here, as well as some worn specimens of Celastrina ladon ladon (Cramer).

Next, we proceeded into the denser woods beside one of the scrub oak shale barrens farther down the road. Here, we again encountered such woodland species as Basilarchia arthemis astyanax, Megisto cymela and Nymphalis antiopa. At one point, the woods were so thick that very little sunlight could penetrate through the leaves of the trees overhanging the narrow and treacherous road. Here, flying around the sunlit leaves, just out of our reach, we could see several Asterocampa butterflies dancing back and forth as enticing shadows in the treetops. This could have been a mixed colony of Asterocampa celtis (Boisduval & LeConte) and A. clyton (Bdv.& LeC.), for both species have previously been recorded from this region. We did not get a chance to identify most of the ones flying around overhead, to species level, but we were sure that they were Asterocampa, as they seemed to come back to the same hackberry trees time and time again. Eventually, we were able to net one when it came lower to oviposit on the underside of a hackberry leaf by the roadside and, after identifying it as a female A. celtis, released it to fly back to the treetops. A further search of the hackberry foliage revealed two or three additional masses of creamy white, circular Asterocampa eggs.

More Viburnum flowers were found growing in this area, and additional Satyrium calanus falacer and Lepturine longhorns were collected. Again, a limited number of Gaurotes cyanipennis were encountered. The flowers were so high here, and the cliffs so steep, that we had difficulty collecting them. Many of the S. c. falacer seemed to prefer alighting on the surfaces of oak and hickory leaves when the sun would hit them. With so little sunlight filtering down to our level, there developed quite a bit of competition among the hairstreaks for the right spots. On several occasions, we found ourselves poised to capture a fresh S. c. falacer, when a worn one would charge up and scare the good one from its sunlit perch. At one spot near a stream, we observed five or six of them all madly flying around chasing each other over a single patch of sunlight on a choice mulberry leaf. No sooner would one land on this coveted perch than he would be promptly chased away by another one from the crowd. Even successive swipes of our nets could not deter these pugnacious little butterflies from fighting over this choice spot!

We continued to observe the hairstreaks and to collect in this area for a while longer. Just as we prepared to leave, however, I stumbled onto the best catch of the entire day. There on an overhanging oak leaf before me, a beautiful fresh male specimen of Parrhasius m-album (Boisduval & LeConte) landed to sun itself. After picking my jaw off the ground, I managed to nab the little beast. At this point, I consider-

ed my day a raving success.

Before departing for home, we made one additional stop at the extensive pine barrens along C.C.C. Road above Stottlemyer farm. Here, we collected more Satyrium calanus falacer, Epargyreus clarus, Pterourus troilus, Harkenclenus titus and Vanessa virginiensis. The majority of these were taken while feeding at the flowers of Indian hemp and, occasionally, at New Jersey tea, which was well past its prime.

By now it was late in the afternoon and we had to tear ourselves away and start for home. We all had taken our limit and would undoubtedly have to spend many hours papering and spreading our specimens. Everyone had an exciting and successful trip. Some of those attending collected species that they had only read about in the past. We all resolved to return to this area for future collecting excursions.

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NOTES ON LITTLE KNOWN MARYLAND BEETLES: I. NOSODENDRON UNICOLOR

C. L. Staines, Jr.

The Nosodendridae consists of 28 species worldwide with only two species in the United States. The two U.S. species belong to the genus Nosodendron. N. californicum Horn, occurs in California and Oregon while N. unicolor Say, occurs on the east coast, west to Kansas (Casey, 1912).

Description: Body oblong-oval; color deep black. Head prominent; mentum enlarged, entirely encloses the mouth ventrally. Scutellum well developed, acutely triangular. Elytra punctate, no striations. Vestiture consists of rows of short hair tufts on the body. Antennae 11 segmented with a three-segmented club. Tarsi 5-5-5, not lobed. Length 4.7-5.2mm; width 2.7-3.0mm.

Ecology: N. unicolor is a gregarious species, numerous adults and larvae can be collected in a small area. Preferred habitats are slime flux, tree wounds, hollow trees, under bark, stale molasses bait (Kirk, 1969), carrion (Kirk, 1970), and fungi (Hayes and Chu, 1946). Sokoloff (1959) found the N. californicum is predaceous on small arthropods and suggests the N. unicolor probably is predaceous also.

Distribution in Maryland: The following specimens were examined - ANNE ARUNDEL Co.: Davidsonville, 27-V-76 (from Norway maple). BALTIMORE Co.: Leakin Park, 19-V-66, 26-V-67 (under tulip tree bark). Patapsco State Park, 10-VI-76 (from sycamore). Randallstown, 4-V-67. MONTGOMERY Co.: Silver Spring, 25-V-50 (from tulip tree sap flow). PRINCE GEORGES Co.: College Park, 10-IV-33.

Acknowledgements

I would like to thank E.J. Ford and C. Mitter (University of Maryland) for allowing me to examine the collections under their care.

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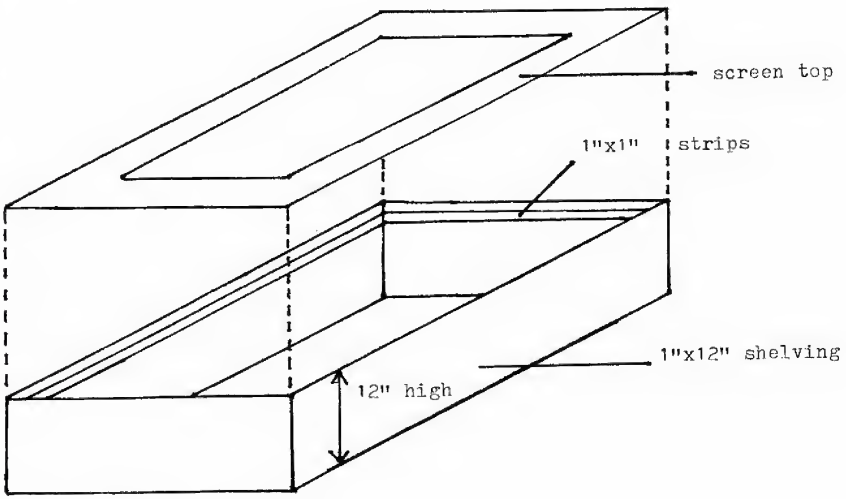
A SIMPLE CAGE FOR REARING AND OVERWINTERING THE NOMADIC LARVAE KNOWN AS WOOLLY BEARS (ARCTIIDAE)

Robert S. Bryant

One of the greatest problems encountered when rearing the wandering larvae of the arctiid moths is how to care for them through the winter. Should the larvae be confined in some sort of container and exposed to normal outdoor temperatures? In Maryland this means occasional warm spells during which the larvae may become active and search for food. Or should they be overwintered in a fairly constant, though artificial, environment in the refrigerator? In addition, the rearer must guard against too much or too little humidity and decide on the best times to initiate and break diapause, in order to meet the needs of the larvae. These problems can be solved by constructing a movable, or a permanent, outdoor cage in a sunny corner of your yard.

This cage is designed to be placed on the ground, over beds of previously prepared foodplants. The length and width may vary but the height should be approximately 12 inches. Keep in mind that the larger the cage, the more larvae that can be sustained without moving it to a new spot.

The first step is to obtain a discarded but intact window screen, or for a larger cage, a whole screen door may be used. Next, a frame which will form the sides is cut from 1x12 inch shelving and assembled so that the screen will fit snugly inside the frame. Then 1x1 inch strips are tacked around the inside of the frame, about one inch from the top, to form a ledge on which the screen rests. This is done so that accidental jarring will not dislodge the screen and leave gaps through which larvae might escape. Unless you have access to rot-resistant redwood or locust boards, the whole cage should be painted with at least two coats of a non-chalking outdoor enamel. The cage, when finished, should be placed on a two inch collar of loose sand. This will eliminate any gaps between the frame and the ground and afford better water drainage away from the frame.



Now you are ready to prepare the foodplant bed(s). Most of the nomadic arctiid larvae browse on a mixed diet of low plants and show a particular fondness for plantain and dandelion. Plantain may be found

in, and transplanted from, almost any lawn, field or roadside ditch. Use mostly the narrow leafed variety, but a few of the broad leafed type may also be added. Dandelions cannot be transplanted with much success due to their extremely long tap roots. Therefore, it is best to collect seed in the spring and sprinkle it in the open spaces between the transplants.

This type of cage has several practical features. If too many larvae exhaust the food supply, it can be moved to a new spot containing a similar assortment of plants. During periods of non-use, it can be removed and stored in a dry place. But perhaps most importantly, it allows larvae to be left out in the natural environment through the winter, free to break diapause whenever the weather permits.

A generous handful of leaves or straw should be added in the late fall so that the larvae can conceal themselves and have some protection against the elements. Also, the screen top should be removed during snow storms, and replaced immediately after, so that an insulating blanket may accumulate over the larvae, just as it would in the wild.

A more permanent cage may be built by those with a flair for masonry work. First, dig a hole three or four inches deep and approximately the size of the cage to be built. Cover the bottom of the hole with one quarter inch mesh galvanized hardware cloth, to prevent mice from tunneling in. Four or five courses of brick may then be laid up to form the sides. Replace the soil over the hardware cloth, and provide plants as before. A durable top can be provided by using the aluminum frame, screen inserts, manufactured for storm doors.

This same basic cage, with minor alterations or height adjustments, could serve equally well for some of the overwintering butterfly larvae such as fritillaries and checkerspots, provided their particular foodplant requirements were met.

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THE RHIPICERIDAE OF MARYLAND (COLEOPTERA)

C. L. Staines, Jr.

The Rhipiceridae is a family of moderately-sized (11 to 24mm.) beetles and contains 163 species worldwide and six in the United States (Arnett, 1973). There are two genera in the United States.

Description: Elongate, convex, somewhat depressed dorsally. Color brownish to black. Antennae 11-segmented; male with segments III to XI strongly lamellate, eight to ten times as broad as long; female with segments VIII to X two to four times as broad as long. Antennae inserted on prominent tubercles between the eyes above the base of the mandibles. Mandibles large, nearly as long as head, elongate, apical half sharply bent, very stout.

Pronotum anteriorly as narrow as the head, posteriorly wider but not as wide as the elytra. Elytra entire, apically rounded, surface vaguely costate. Tarsal formula 5-5-5, usually with segments I to IV short, broad, with bilobed pads beneath, segment V elongate, or tarsi simple.

Key to the genera

Tarsi lobed beneath.....Sandalus
Tarsi not lobed beneath.....Zenoa

Zenoa

In addition to the unlobed tarsi, this group is distinguished from Sandalus by the mandibles being emarginate or bifid at the tip. One species occurs in North America.

Zenoa picea Beauvois

Description: Elongate-oblong. Color black or dark reddish brown. Antennae extending to or slightly beyond base of pronotum. Antennal segments wide, serrate on the inner surface. Pronotum with front and hind angles prominent; disk with a small rounded impression on each side of the midline and a larger one at the base. Elytra four costate. Length 11 to 15mm.

Ecology: Larvae are found in dead wood and decaying logs (Peterson, 1953). Blatchly (1910) reports the larvae most commonly in dry upland

woods. Adults are attracted to lights.
Range: Pennsylvania to Florida west to Texas, Kansas and Indiana.

Specimens examined: ANNE ARUNDEL Co.: Edgewater, 15-VII-80. BALTIMORE Co.: Hebbville, 17-VII-69. Ten Hills, VII-64, 19-VII & 3-IX-72, 22-VII-76 (from stored elm log), 22-VII-82 (at light) all 5 in R.S.Bryant collection. HARFORD Co.: Aberdeen, 10-VII-63. MONTGOMERY Co.: Cabin John, 28-VII-12. Plummer's Island, 19-VIII-03, 15-VIII-16, 6-VIII-18.

Sandalus

Species in this genus have large, stout mandibles which are toothed on the inner side near the base. The antennae are little longer than the head. There are five species in the United States (Arnett, 1973) with two species occurring in Maryland. The last generic revision was Horn (1881).

Key to the Maryland species

Thorax obtusely subangulate behind the middle; elytra slightly wider than pronotum.....petrophyus
Thorax regularly conical; elytra distinctly wider than pronotum...niger

Sandalus niger Knoch

Description: Elongate, convex. Pronotum conical, much narrower in front, sides rounded without distinct edges. Females larger than males. Color varies from black to light brown. The light brown forms have orange antennae and the pronotum is darker than the elytra. The elytra are punctured and have a faint costa. Females are generally darker in color with the elytra having the greatest width at the posterior third of their length. Male elytra have their greatest width at the anterior end. Length 17 to 25mm.

Ecology: Craighead (1921) recovered a pupa of this species in the last instar nymph of a cicada (Homoptera: Cicadidae). Young (1955) and Elzinga (1977) have observed large numbers of *S. niger* associated with cicadas. It is probable that the larvae are parasitic on cicadas.

Adults have been collected from Ulmus (Ulmaceae); Fraxinus (Oleaceae); Acer (Aceraceae); Fagus, Quercus (Fagaceae); Platanus (Platanaceae); and Tilia (Tiliaceae) (Dodge, 1941).

Females are usually found on the bark of trees; males are found flying around trees on sunny afternoons (Elzinga, 1977). The adults apparently do not feed (Dodge, 1941; Elzinga, 1977). Eggs are deposited in bark crevices on the trunks of trees (Dodge, 1941).

Range: Eastern North America west to Texas, Kansas and Indiana.

Specimens examined: CALVERT Co.: Plum Point, 13-X-38. FREDERICK Co.: Point of Rocks, 25-IX-04. MONTGOMERY Co.: Herzog Island, 18-X-35. Potomac, 16-X-69. Seneca, summer 1967. Sycamore Island, 5-X-24. DISTRICT OF COLUMBIA: 9-X-23, 29-IX-82.

Sandalus petrophyus Knoch

Description: Elongate, subconvex. Pronotum about twice as broad as long; sides with distinct edges, subangulate on basal third. Color dark chestnut brown to black. Each elytron with three faint costae. Males with elytra narrowing beyond middle; females with elytra widening beyond middle. Length 12 to 17mm.

Ecology: Blatchley (1910) reports adults are active near Juniperus virginiana L. (Cupressaceae).

Range: Pennsylvania to Florida west to Indiana and Illinois.

Specimens examined: ANNE ARUNDEL Co.: Annapolis, 18-VIII-78. Edgewater, 2-VIII-82. BALTIMORE CITY: Canton, 30-VII-69. MONTGOMERY Co.: Cabin John, 6-VIII-18. Chain Bridge, 29-VII-15. Plummer's Island, 2-VIII-08, 9-VIII-13, 21-VIII-15, 12-VIII-16.

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C.L.S., Jr., 3302 Decker Place, Edgewater, Md. 21037

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BOOK NOTICE

SCORPIONS OF MEDICAL IMPORTANCE. by Hugh L. Keegan. 1980. University Press of Mississippi, Jackson. 140pp. $22.50 (Hardbound).

Of the approximately 800 scorpion species of the world, there are 37 species that may be considered dangerously venomous. The late Dr. Keegan has written an interesting and well illustrated book on the distribution, morphology, biology and classification of scorpions considered to be of public health importance. This is not a book on scorpion taxonomy, nor does it delve into the fields of biochemistry or pharmacology of scorpion venoms. It does cover, very adequately, the geographic distribution and briefly discusses the biology of those species that could be considered dangerous, and the clinical aspects of scorpion envenomation. An extensive bibliography provides readers with references to additional material not covered by the text.

There are superb illustrations of 26 species of dangerous scorpions that would assist the amateur or professional to identify these interesting animals.

Submitted by Eugene J. Gerberg, Ph.D., R.P.E.

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"OWED" TO A CRAB SPIDER

Sneaky, deadly highwayman,
Member of the Misumena clan,
How can you look so innocent
Yet be, on murder, solely bent?

Amid the petals, tucked away,
Waiting for some hapless prey;
When that butterfly came to dine
It should, by rights, have been mine.

Seeing your illicit contraband
Is really more than I can stand.
How many others have met their fate
Just to grace your dinner plate?

It would, for you, have been more wise
To stick to bees and wasps and flies
And leave the butterflies alone,
Especially around my home.

Since this yard you're poaching in
Is mine, but you show no chagrin,
My only recourse against future sedition
Is simply to eliminate the competition.

R.S. Bryant, 522 Old Orchard Rd., Baltimore, Md. 21229

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The Maryland Entomologist is published irregularly by the Maryland Entomological Society. There are four numbers in each volume. Original articles on geographic and temporal distribution, particularly pertaining to Maryland and adjacent states, ecology, biology, morphology, genetics, systematics, behavior, etc. are welcome. Book notices and reviews, news of the members, requests for information, notes on distribution, occurrence, migration, life history and others will be published. All articles are subject to editorial review and acceptance. They should be sent to Robert S. Bryant, 522 Old Orchard Rd., Baltimore, MD 21229.

This publication will reflect the interests, views and talents of the entire membership. It will be viable as long as everyone deems his contributions as necessary and meaningful for its continuance.

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NOTICE TO CONTRIBUTORS

Contributors should prepare manuscripts according to the following instructions.

Text: Manuscripts should be submitted in duplicate, and must be typewritten, entirely double-spaced, employing wide margins, on one side only of 8½ X 11 inch paper. The first mention of a plant or animal in the text should include the full scientific name, with authors of zoological names. Underline only where italics are intended. Short articles and general notes are preferred, up to a maximum of twelve pages. Longer manuscripts, if accepted, will be assessed page charges.

Literature Cited: References in the text to articles or books should be given as, Villiard (1964) or (Villiard, 1964, 1969) and all must be listed alphabetically under the heading LITERATURE CITED, as follows:

Villiard, P. 1964. Multicolored World of Caterpillars. Natural History. LXXIII(4):24-31

_____. 1969. Moths and How to Rear Them. Funk & Wagnalls, New York. 235pp.

Additional references that may be helpful to the reader, and not to exceed six in number, should be listed under the heading SELECTED REFERENCES, in the above manner.

Tables: Tables, graphs and line drawings should be done with indelible, black ink and should be placed on separate sheets, following the main text, with the approximate desired position indicated in the text.

Illustrations: Photographs may be accepted if they are necessary to support the text. Reproduction of photographs may increase the printing cost and authors should expect to pay any extra charges. Photographs should be approximately 2½ X 3½ inches, if depicting single specimens, and not larger than 5 X 7 inches for groups of specimens. They must be black and white, glossy finish and mounted with frosted tape, wax or rubber cement to an extra sheet of paper. Figure numbers, as cited in the text, and figure legends should be typewritten below each photograph.

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